Pollution Prevention-Individual Awards

Mr. John Riggs, Head of Resource Conservation and Recovery Branch, and Base Environmental Compliance Coordinator

Mr. McArthur Farrow, Supervisor for the Pollution Abatement Section

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A combination of two outstanding leaders has made Camp Lejeune's Pollution Prevention Program second to none. As Head of the Resource Conservation and Recovery Branch, Mr. John Riggs has shown the initiative and leadership to establish a Hazardous Waste Consolidation Center, which has led to a 60 percent reduction in generated hazardous waste. Mr. McArthur Farrow, Supervisor for the Pollution Abatement Section, has used his extensive knowledge of pollution abatement equipment to create innovative techniques for excess fuels management and reclamation programs. To date, 95,554 gallons of used oil, 48,300 gallons of antifreeze, 17,726 gallons of diesel fuel, and 28,970 gallons of oil skimmings have been reclaimed for use as alternate fuels, introduction into the DoD "re-refined" oil program, or glycol recovery. Together, these two individuals have established outstanding programs; fostered the development of interactive educational outreach programs; acquired state-of-the-art support equipment; and developed facilities to beneficially reclaim, recycle, and reduce the quantity of hazardous materials and waste sent off-site for disposal.

Introduction

The primary objective of Camp Lejeune's Pollution Prevention Program is to reduce the volume and toxicity of generated waste through cost-effective management, while balancing this objective with health and safety considerations. Camp Lejeune is unique in both its large land base of 153,000 acres and its vast population of 140,000, making it the equivalent of a medium-sized city. The Base treats its own drinking water and wastewater, provides for the disposal of its solid waste in the Base sanitary landfill, generates steam for heating, operates a variety of paint spray booths and other air emission sources, and disposes of hazardous and non-hazardous waste. These diverse functions create a host of opportunities for pollution prevention.

Camp Lejeune has achieved significant pollution prevention milestones through material substitutions, process modifications, and improved solid and hazardous materials and waste management. These efforts have enabled the Base to meet or exceed toxic chemical, hazardous waste, solid waste, and recycling U.S. Department of Defense (DoD) pollution prevention Measures of Merit. Camp Lejeune has thus become a model of environmental stewardship by addressing increased troop training demands, while implementing pollution prevention initiatives that enhance the quality of our natural environment.

The Environmental Management Department (EMD) ensures that Camp Lejeune's land and natural resources are used and managed to satisfy its primary training mission, while preventing pollution and

Major Achievements

Using his management talents and understanding of environmental compliance, **Mr. John Riggs** has:

- Established a Hazardous Waste Consolidation Center.
- Acquired new equipment and facilities for spill response and pollution abatement.
- Applied the Universal Waste Rule to manage disposal of communication batteries, mercury thermostats, and pesticides.
- Developed a household hazardous materials management program.
- Initiated a cold solvent degreasing management program.

Experienced and knowledgeable with engineering designs of pollution abatement facilities and specialized equipment, **Mr. McArthur Farrow** successfully:

- Created management guidelines for ongoing pollution abatement facilities and for reclamation initiatives.
- Established a used oil management program.
- Developed an ongoing education outreach program for Marine Corps and Navy personnel.

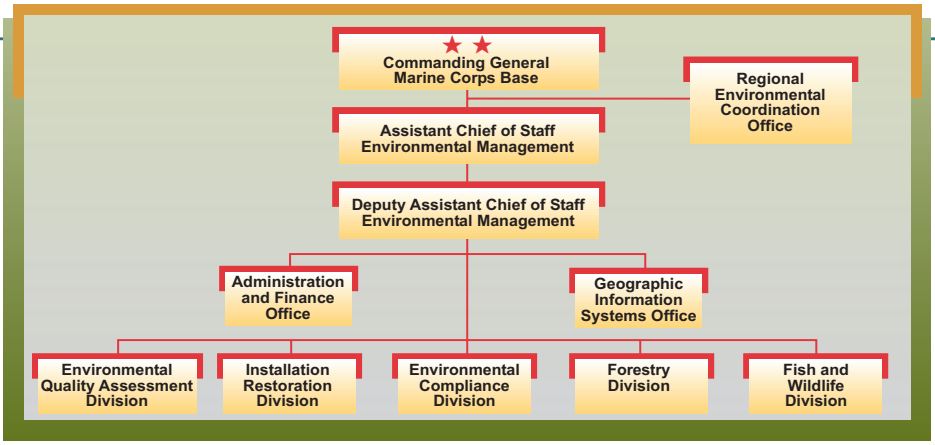

Exhibit 1. Organization of Camp Lejeune's Environmental Management Department.

complying with a broad range of federal, state, and local environmental laws and regulations. Headed by an Assistant Chief of Staff, the EMD is composed of five divisions and three separate offices (*Exhibit 1*). The Assistant Chief of Staff is the principal assistant to the Commanding General for environmental regulatory compliance matters.

The Department's specific areas of responsibility include pollution prevention, hazardous waste management and cleanup, environmental compliance monitoring, development of environmental plans and programs, budgeting, solid waste reduction and recycling, environmental permitting, potable water and wastewater monitoring, threatened and endangered species protection, forestry management, archaeological and historical resource management, and soil and water conservation.

Acquisition of State-of-the-Art Support Equipment and Facilities

Mr. Riggs' initiatives, through both the Department of the Navy and Marine Corps programs, have resulted in the Branch and Environmental Management Department acquiring various ground support equipment, distillation units, spill response equipment and support facilities for the management of hazardous materials, hazardous waste, used oils, fuels, antifreeze, and soils. Support equipment (examples shown in *Exhibit* 2) is used for both ongoing maintenance of pollution abatement facilities and spill response efforts. Some of this equipment represents the initial stages for the development of waterborne response, which will be carried out in support of budding Marine Corps initiatives associated with the *Riverine Excellence Program* and *Water Borne Refueling for Shallow Water Training*.

Exhibit 2. New Support Equipment and Facility. *The equipment is used for pollution abatement and spill response efforts.*

Establishment of Hazardous Material Consolidation Center

Camp Lejeune established a Hazardous Material Consolidation Center (HMCC) at 2d Maintenance Battalion, 2d Force Service Support Group (FSSG), using the Hazardous Substances Management System (HSMS) software, and have begun to set up another HMCC at 2d Supply Battalion, 2d FSSG, in an effort to expand the program Base-wide (*Exhibit 3*).

Testing of Hazardous Material Consolidation Center

Headquarters Marine Corps had selected Camp Lejeune to conduct a beta test of the Defense Corporate Information Management Program's HSMS. The software provides a quick, accurate means of receiving, distributing, and accounting for hazardous materials and their component

Benefits of the Hazardous Materials Consolidation Center

- Minimizes inventory and potential shelf-life expiration.
- Places hazardous material handling and storage activities under the control of "duty experts."
- Tracks hazardous substances from cradle to grave.

Exhibit 3. Hazardous Materials Consolidation. *The computerized consolidation center is used to procure, handle, store, and issue hazardous materials, thus ensuring safety and minimizing the possibility of noncompliance.*

chemicals, as well as the accumulation and disposition of hazardous waste. The beta test, which began in early 1998 at 2d Maintenance Battalion, 2d FSSG, validated system functionality and identified system enhancement requirements.

Establishment of Hazardous Waste Consolidation Center

With Mr. Riggs' overall environmental leadership, the establishment of the center (*Exhibit 4*) has drastically reduced the:

- Amount of waste management sites
- Unit commanders' management requirements and overall liability
- Overall cost relative to disposal container cost

Exhibit 4. Consolidation Center. The Resource Conservation and Recovery Branch operates a consolidation center for hazardous waste.

To date, 34 hazardous waste generation/accumulation sites have been consolidated with an additional 33 accumulation sites closed and more than 244,000 pounds of materials processed. Serving as an effective monitoring point for generated materials and waste, the presence of the site has led to a 60 percent reduction in generated hazardous waste.

Exhibit 5 shows additional tank facilities constructed during FY 1999, which are used for the collection of oils, fuels, and residual anti-freeze. From these tanks, excess water can be evacuated and the material used for on-installation or off-site management.

Application of Newly Released Universal Waste Rule

Drawing from 9 years experience as a regulatory enforcement representative, Mr. Riggs used his understanding of regulations to ensure compliance throughout Camp Lejeune and its tenant commands, which allows the ongoing training of Marines and Navy personnel. Through Mr. Riggs' initiatives, Camp Lejeune was successful in partnering with the State regulatory agencies on complying with the newly released Universal Waste Rule. Applying the *Elementary Neutralization of Spent Acids,* Camp Lejeune projects a $10,000 savings for disposal of spent acids. Application of this rule alone has allowed the Base to recycle more than 231,906 pounds of material that had previously been classified as a hazardous waste.

Mr. Riggs continues to develop technical review of environmental programs, studies, and the applicable regulations to meet regulatory and environmental requirements and also provides recommendations to Camp Lejeune, the tenant command, and various State/Military Working Groups.

Exhibit 5. Constructed during FY 1999, this tank facility collects oils, fuels, and residual anti-freeze.

Pollution Prevention Initiatives Manage Usage and Final Disposition of Hazardous Materials

Consistent with the Navy's and Marine Corps' pollution prevention tenants, Mr. Riggs continues to implement cost-effective pollution prevention initiatives. During FY 1999, Mr. Riggs:

- Established a program for the receipt and management of excess pesticides under the Universal Waste Rule or through donation. During FY 1999, 21,873 pounds of the pesticides

malathion and dursban were recycled with a cost avoidance for the program participants of $70,000.

- Developed a household hazardous materials collection program to serve the installation housing tenants. Assorted paints, solvents, sprays, and other hazardous materials in excess of 500 gallons were reclaimed and re-issued for use.

- Successfully developed a total management program for cold solvent degreasing operations, which includes extended change-out rates, development of filter systems, and ongoing laboratory analysis. This program resulted in an 85 percent reduction of the spent solvents being classified as hazardous waste, showed a 70 percent reduction from FY 1998 in spent solvent being transported off-site, and resulted in a 32 percent cost savings.

- Completed the installation of two distillation stills, established for the reclamation of xylene, alcohol, and formalin waste associated with medical laboratory processes. As a result of these two systems, 1,500 gallons of previously managed hazardous waste are distilled for use with an associated cost avoidance of more than $9,000.

Using Innovative Techniques for Pollution Abatement

As Pollution Abatement Supervisor, Mr. McArthur Farrow is responsible for all aspects of pollution abatement facilities management and for the development of an ongoing educational outreach program for Marine Corps and Navy personnel at the operational level. Using his sound knowledge of the engineering designs of pollution abatement facilities and of wastewater management principles, Mr. Farrow successfully developed new techniques for removing and managing residual oily waste. Incorporation of this equipment and application of his management guidelines resulted in a 31 percent reduction in the amount of oil skimmings being disposed of off-site, with a cost avoidance of $7,242.

Newly Established Used Oil Programs

Mr. Farrow's initiatives for used oil management included the development of the Base Re-Refined Used Oil program, Used Oil Donation, Base Used Oil-Supplemental Fuels program, and contractual disposal of on- and off-specification oils. By using some of the specialized equipment shown in ***Exhibits 2 and 5,*** used/excess oil collected from 152 generating sites is stored, dewatered, and laboratory analysis completed to determine any potential uses. As a result of Mr. Farrow's initiatives during FY 1999, 36,352 gallons of used oil were donated for recycling as secondary fuels, and 95,554 gallons of oil were managed for off-site utilization. By incorporating the Base Re-Refined Used Oil Program and other used oil initiatives developed by Mr. Farrow, it is anticipated that all used oil generated at Camp Lejeune and its tenant commands will now be managed within a closed-loop recycle program.

Reclamation of Excess Fuels and Anti-Freeze Saves Money

Capitalizing on the presence of specialized pumping equipment and storage facilities, Mr. Farrow developed guidelines for the collection and management of excess or technically contaminated fuels. During FY 1999, 17,726 gallons of diesel fuel were collected and managed as a fuel for energy recovery with an associated cost avoidance of $8,864. As a result of Mr. Farrow's initiatives, a system of fuel filters/polishers were developed and all future excess or technically contaminated fuels will be reclaimed for on-site use.

Inherent to the operation of heavy equipment and subsequent preventive maintenance is the accumulation of spent anti-freeze. Although life-cycle analysis has shown that on-site reclamation is not cost-effective at the Base, under Mr. Farrow's direction, a system of used/excess anti-freeze collection tanks were placed at each generating activity. As a result of his direction, 48,300 gallons of used anti-freeze were collected during FY 1999 and managed by an off-site contractor as a recyclable product.